Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A vehicular motion control apparatus, comprising:

a steering angle detecting section ~~that detects~~ configured to detect a vehicular steering angle;

a vehicle speed detecting section ~~that detects~~ configured to detect a vehicle speed;

a vehicular motion control mechanism ~~that is capable of controlling~~ configured to control a vehicular motion;

a state detecting section ~~that detects~~ configured to detect a state of the vehicular motion control mechanism;

a vehicular motion target value calculating section ~~that calculates~~ configured to calculate a target value of the vehicular motion for a response characteristic on a vehicular plane motion to be enabled to provide a predetermined response characteristic on a [[the]] basis of detection values of the steering angle and the vehicle speed and vehicle speed dependent constants preset in a form of a map for each vehicle speed;

a control command value calculating section ~~that calculates~~ configured to calculate a vehicular motion control mechanism command value required to achieve the target value of the vehicular motion; and

a servo calculating section ~~that provides~~ configured to provide a control signal for ~~a rear road wheel steering actuator~~ the motion control mechanism ~~in such a manner that~~ in order for a detection value of the state of the vehicular motion control mechanism [[is]] to be made coincident with the motion control mechanism command value; and

a vehicular velocity variation rate limiter ~~that places~~ configured to place a limitation on a vehicle speed variation rate by comparing the detected value of the vehicle speed to a vehicular speed variation rate limit value, wherein the vehicular speed variation rate limit value [[and]] varies in accordance with the detection value of the vehicular steering angle,

wherein the vehicular motion target value calculating section is configured to determine a map reference vehicle speed on the basis of [[using]] an output of the vehicular velocity ~~speed~~ variation rate limiter ~~for a map reference vehicle speed and the control~~

~~command value calculating section using the output of the vehicular speed variation rate limiter to the detection value of the vehicle speed for a control command value calculation~~.

2. (Currently Amended) A vehicular motion control apparatus as claimed in claim 1, wherein the vehicular velocity ~~vehicle speed~~ variation rate limiter ~~is designed in such a manner that, as the detection value of the steering angle becomes larger, a limit value of the vehicle speed variation rate is made smaller and, as the detection value of the steering angle becomes smaller, the limit value of the vehicle speed variation rate is made larger~~ includes a setting section configured to increase the vehicular speed variation rate limit value (dVlimit) as an absolute value of the detection value of the steering angle decreases.

3. (Currently Amended) A vehicular motion control apparatus as claimed in claim 1, wherein the vehicular motion control mechanism comprises a rear road wheel steering angle providing section ~~that provides~~ configured to provide a rear road wheel steering angle for the vehicle, the state detecting section comprises a rear road wheel steering angle detecting section ~~that detects~~ configured to detect the rear road wheel steering angle, the control command value calculating section comprises a rear road wheel steering angular command value calculating section ~~that calculates~~ configured to calculate a rear road wheel steering angle command value required to achieve the vehicular motion target value,

wherein [[and]] the rear road wheel steering angular ~~angle~~ command value calculating section ~~approaches~~ is configured to calculate [[the]] rear steering angle command values that approach ~~value to~~ zero when the detection value of the vehicle speed is lower than a preset vehicle speed, irrespective of a result of calculation of the rear road wheel steering angle command value required to achieve the vehicular motion target value.

4. (Currently Amended) A vehicular motion control apparatus as claimed in claim 3, wherein the vehicular motion target value calculating section comprises a vehicular motion target value setting section ~~that calculates~~ configured to calculate a target yaw rate ($\Psi'*$) and a target yaw angular acceleration ($\Psi''*$) on the basis of the detection values of a front road wheel steering angle detecting section and of the vehicle speed detecting section,

wherein the rear road wheel steering angular command value calculating section is configured to calculate ~~calculates~~ a target rear road wheel steering angle ($\delta*$) on the basis of

the target yaw rate (Ψ'*), target yaw angular acceleration (Ψ"*), [[the]] detection values of [[the]] front road wheel steering angle (θ) and the vehicle speed (V), [[and]]

wherein the servo calculating section comprises a rear road wheel steering angle servo calculating section ~~that outputs~~ configured to output the control signal to a [[the]] rear road wheel steering actuator ~~in such a manner that~~ in order for the rear road wheel steering angle (δ) detected by the rear road wheel steering angle detecting section [[is]] to be made coincident with the target value of the rear road wheel steering angle (δ*).

5. (Currently Amended) A vehicular motion control apparatus as claimed in claim 4, wherein the vehicular motion target value setting section is configured to calculate ~~calculates~~ the target yaw rate (Ψ'*) to the front road wheel steering angle (θ) on the basis of a predetermined transfer function (Ψ'*/θ) between the front road wheel steering angle (θ) and the target yaw rate (Ψ'*), wherein the predetermined transfer function includes ~~having~~ a plurality of vehicle speed dependent constants which are preset with ~~to enable their~~ predetermined characteristics on the basis of the map reference vehicle speed (Vmap) ~~in accordance with the vehicle speed which is the map reference vehicle speed (Vmap) and the vehicle speed for the control command calculation~~.

6. (Currently Amended) A vehicular motion control apparatus as claimed in claim 5, wherein the rear road wheel steering angular ~~angle~~ command value calculating section is configured to calculate ~~calculates~~ the target rear road wheel steering angle (δ*) such that ~~which enables~~ an actual yaw rate is ~~to be~~ coincident with the target yaw rate (Ψ'*).

wherein the rear road wheel steering angular command value calculating section calculates the target rear road wheel steering angle (δ*) on the basis of the target yaw rate (Ψ'*), the target yaw angular acceleration (Ψ"*), the detection value of the front road wheel steering angle (θ), and ~~the detection value of the vehicle speed which is~~ the map reference vehicle speed (Vmap) ~~through the vehicle speed variation rate limiter~~.

7. (Currently Amended) A vehicular motion control apparatus as claimed in claim 6, wherein the vehicle velocity ~~speed~~ variation rate limiter comprises:

a vehicle speed variation rate limit value setting section ~~that sets~~ configured to set a vehicle speed variation rate limit value (dVlimit) in accordance with an absolute value of the steering angle (|θ|) detected by the front road wheel steering angle detecting section;

a first map reference vehicle speed comparing section ~~that compares~~ configured to compare a [[the]] present detection value (V(n)) [[(V)]] of the vehicle speed with a previous map reference vehicle speed (Vmap(n-1)) from ~~before~~ a previous predetermined control period to determine whether the present detection value of the vehicle speed (V(n)) is equal to, larger than, or smaller than the previous map reference vehicle speed (Vmap(n-1));

a second map reference value comparing section ~~that compares~~ configured to compare a first difference between [[of]] the present value of the vehicle speed (V(n)) and [[from]] the previous map reference vehicle speed (V(n) -Vmap(n-1)) and determine if the first difference is larger than the vehicular ~~vehicle~~ speed variation rate limit value (dVlimit) when the first map reference vehicle speed comparing section determines that the present detection value of the vehicle speed (V(n)) is greater ~~higher~~ than the previous map reference vehicle speed ~~value~~ (Vmap(n-1));

a third map reference vehicle speed comparing section ~~that compares~~ configured to compare a second difference between [[of]] the previous map reference vehicle speed ~~value~~ (Vmap(n-1)) and [[from]] the present detection value of the vehicle speed (Vmap(n-1)–V(n)) and determine if the second difference is larger than [[with]] the vehicular ~~vehicle~~ speed variation rate limit value (dVlimit) ~~to determine whether a difference (V(n) – Vmap(n-1)) of the present detection value of the vehicle speed (V(n)) from the previous map reference vehicle speed (Vmap(n-1)) is larger than the vehicle speed variation rate limit value (dVlimit)~~ when the first map reference vehicle speed comparing section determines that the present value of the vehicle speed (V(n)) is smaller than the previous value of the map reference vehicle speed (Vmap(n-1));

a first map reference vehicle speed setting section ~~that sets~~ configured to set a [[the]] present map reference vehicle speed (Vmap(n)) ~~in such a manner that the present map reference vehicle speed is set~~ to be equal to a sum ~~an addition~~ of the previous detection value of the map reference vehicle speed and [[to]] the vehicular ~~vehicle~~ speed variation rate limit value (dVlimit) (Vmap(n) = Vmap(n-1) + dVlimit) when the second map reference value ~~vehicle speed~~ comparing section determines that the difference between [[of]] the present

value of the detection value of the vehicle speed (V(n)) and [[from]] the previous map reference vehicle speed (Vmap(n-1)) is larger than the vehicular ~~vehicle~~ speed variation rate limit value (dVlimit);

a second map reference vehicle speed setting section ~~that sets~~ configured to set the present value of the map reference vehicle speed (Vmap(n)) ~~is set~~ to be equal to the present detection value of the vehicle speed (V(n)) when the first map reference vehicle speed comparing section determines that the present value of the detection value of the vehicle speed (V(n)) is equal to the previous map reference vehicle speed (Vmap(n-1)), when the second map reference value ~~vehicle speed~~ comparing section determines that the first difference ((V(n) – Vmap(n-1)) is equal to or smaller than the vehicular ~~vehicle~~ speed variation rate limit ~~limitation~~ value (dVlimit), and when the third map reference vehicle speed comparing section determines that the second difference is equal to or smaller than the vehicular ~~vehicle~~ speed variation rate limit value (dVlimit); and

a third map reference vehicle speed setting section ~~that sets~~ configured to set the present value of the map reference vehicle speed (Vmap(n)) ~~is equal~~ to a subtraction of the vehicular speed variation rate limit value (dVlimit) from the previous value of the map reference vehicle speed (Vmap(n-1)) ~~from the vehicle speed variation rate limit value (dVlimit)~~ when the third map reference vehicle speed comparing section determines that the first difference (V(n) - Vmap(n-1)) is larger than the vehicular ~~vehicle~~ speed variation rate limit value (dVlimit).

8. (Currently Amended) A vehicular motion control apparatus as claimed in claim 7, wherein the vehicle speed dependent constants ($G\Psi'$, ωn, ζ, n_1) are determined in accordance with the present value of the map reference vehicle speed (Vmap(n)) set by any one of the first, second, and third map reference vehicle speed setting sections.

9. (Currently Amended) A vehicular motion control apparatus as claimed in claim 6, wherein the rear road wheel steering angular ~~angle~~ command value calculating section comprises:

a vehicle speed region determining section ~~that determines~~ configured to determine whether the detection value of the vehicle speed is lower than a predetermined vehicle speed (B);

a first rear road wheel steering angle command value comparing section ~~that compares~~ configured to compare an absolute value of a previous value of the rear road wheel steering angular ~~angle~~ command value ($|\delta*(n-1)|$) from ~~before~~ a previous predetermined control period with a rear road wheel steering angle command value convergence quantity (α) to determine whether the absolute value of the previous value of the rear road wheel steering angular ~~angle~~ command value ($|\delta*(n-1)|$) is larger than the rear road wheel steering angle command value convergence quantity (α) when the detection value of the vehicle speed (V) is lower than the predetermined vehicle speed (B);

a first rear road wheel steering angle command value setting section ~~that sets~~ configured to set a [[the]] present value of the rear road wheel steering angular ~~angle~~ command value $\delta*(n)$ to zero when the absolute value of the previous value of the rear road wheel steering angular ~~angle~~ command value ($|\delta*(n-1)|$) is equal to or lower than the rear road wheel steering angle command value convergence quantity (α) ($|\delta*(n-1)| \leq \alpha$);

a second rear road wheel steering angle command value comparing section ~~that compares~~ configured to compare the previous value of the rear road wheel steering angular ~~angle~~ command value ($\delta*(n-1)$) with zero when the absolute value of the previous value of the rear road wheel steering angular ~~angle~~ command value ($|\delta*(n-1)|$) is larger than the rear road wheel steering angle command value convergence quantity (α) ($|\delta*(n-1)| > \alpha$);

~~a first rear road wheel steering angle command value setting section that sets the present value of the rear road wheel steering angle command value $\delta*(n)$ to zero when the absolute value of the previous value of the rear road wheel steering angle command value ($|\delta*(n-1)|$) is equal to or smaller than the rear road wheel steering angle command value convergence quantity (α);~~

a second rear road wheel steering angle command value setting section configured to set ~~that sets~~ the present value of the rear road wheel steering angular ~~angle~~ command value $\delta*(n)$ as a subtraction of the rear road wheel steering angular command value convergence quantity from the previous value of the rear road wheel steering angular command value

~~follows:~~ ($\delta^*(n) = \delta^*(n-1) - \alpha$), when the second rear road wheel steering angle command value comparing section determines that the previous value of the rear road wheel steering angular ~~angle~~ command value $\delta^*(n-1)$ is larger than zero; and

a third rear road wheel steering angle command value setting section ~~that sets~~ configured to set the present value of the rear road wheel steering angular ~~angle~~ command value $\delta^*(n)$ as a sum of the previous value of the rear road wheel steering angle command value and the rear road wheel steering angle command value convergence quantity ~~follows:~~ ($\delta^*(n) = \delta^*(n-1) + \alpha$), when the second rear road wheel steering angle command value comparing section determines that the previous value of the rear road wheel steering angle command value $\delta^*(n-1)$ is equal to or smaller than zero.

10. (Currently Amended) A vehicular motion control apparatus as claimed in claim 9, wherein the rear road wheel steering angle command value convergence quantity (α) is a set value of a speed at which the absolute value of the rear road wheel steering angle command value [[|]]$|\delta^*(n)|$ approaches ~~is approached to~~ zero.

11. (Currently Amended) A vehicular motion control apparatus, comprising:

steering angle detecting means for detecting a vehicular steering angle;

vehicle speed detecting means for detecting a vehicle speed;

vehicular motion controlling means ~~which is capable of controlling~~ for controlling a vehicular motion;

state detecting means for detecting a state of the vehicular motion controlling means;

vehicular target value calculating means for calculating a target value of the vehicular motion for a response characteristic on a vehicular plane motion to be enabled to provide a predetermined response characteristic on the basis of detection values of the steering angle and the vehicle speed and vehicle speed dependent constants preset in a form of a map for each vehicle speed;

control command value calculating means for calculating a vehicular motion controlling means command value required to achieve the target value of the vehicular motion; and

servo calculating means for providing a control signal for ~~a rear road wheel steering actuator~~ the vehicular motion controlling means ~~in such a manner that~~ in order for a detection value of the state of the vehicular motion controlling means [[is]] to be made coincident with the vehicular motion controlling means ~~motion control mechanism~~ command value; and

vehicular velocity variation rate limiting means configured to place ~~for placing~~ a limitation on a vehicle speed variation rate by comparing the detected value of the vehicle speed to a vehicular speed variation rate limit value, wherein the vehicular speed variation rate limit value [[and]] varies in accordance with the detection value of the vehicular steering angle,

wherein the vehicular ~~motion~~ target value calculating means is configured to determine a map reference vehicle speed on the basis of [[using]] an output of the vehicular velocity ~~speed~~ variation rate limiting means ~~for a map reference vehicle speed and the control command value calculating means using the output of the vehicular speed variation rate limiting means to the detection value of the vehicle speed for a control command value calculation~~.

12. (Withdrawn – Currently Amended) A vehicular motion control method, comprising:

detecting a vehicular steering angle;

detecting a vehicle speed;

providing a vehicular motion control mechanism ~~which is capable of controlling~~ configured to enable control of a vehicular motion;

detecting a state of the vehicular motion control mechanism;

calculating a target value of the vehicular motion for a response characteristic on a vehicular plane motion to be enabled to provide a predetermined response characteristic on the basis of detection values of the steering angle and the vehicle speed and vehicle speed dependent constants preset in a form of a map for each vehicle speed;

calculating a vehicular motion control mechanism command value required to achieve the target value of the vehicular motion; and

providing a control signal for ~~a rear road wheel steering actuator~~ the motion control mechanism ~~in such a manner that~~ in order for a detection value of the state of the vehicular

motion control mechanism [[is]] to be made coincident with the motion control mechanism command value; and

providing a vehicle speed variation rate limiter configured to place a limitation on a vehicle speed variation rate by comparing the detected vehicle speed to a vehicle speed variation rate limitation, ~~limitation on the detection value of the vehicle speed and varying~~ wherein the vehicle speed variation rate limitation is varied in accordance with the detection value of the vehicular steering angle, wherein [[at]] the vehicular motion target value calculation determines a map reference vehicle speed on the basis of ~~, using~~ an output of the vehicular speed variation rate limiter ~~for a map reference vehicle speed and, at the control command value calculation, using the output of the vehicular speed variation rate limiter to the detection value of the vehicle speed for a control command value calculation~~.

13. (New) A vehicular motion control apparatus as claimed in claim 1, wherein the control command value calculating section is configured to calculate the vehicular motion control mechanism command value on the basis of the map reference vehicle speed.

14. (New) A vehicular motion control apparatus, comprising:

a steering angle sensor configured to detect a vehicular steering angle;

a vehicle speed sensor configured to detect a vehicle speed;

a road wheel steering mechanism;

a road wheel steering angle sensor configured to detect an angle that a road wheel is turned; and

a controller, wherein the controller comprises:

a vehicular motion target value calculating section configured to calculate a target value of a vehicular motion on the basis of the detected steering angle, the detected vehicle speed, and constants that are determined from a map on the basis of vehicle speed;

a road wheel steering angle command value calculating section configured to calculate a road wheel steering mechanism command value, wherein the road wheel steering mechanism command value is calculated to achieve the target value of vehicular motion;

a road wheel steering angle servo calculating section configured to provide a control signal for the road wheel steering mechanism;

wherein the controller is configured to compare the detected vehicle speed to a vehicular speed variation rate limit value to limit variation in detected vehicle speed, wherein the vehicular speed variation rate limit value varies with the detected steering angle;

wherein the controller is configured to calculate a map reference vehicle speed on the basis of the comparison between the detected vehicle speed and the vehicular speed variation rate limit value.

15. (New) The vehicular motion control apparatus as claimed in claim 14, wherein the constants are determined on the basis of the map reference vehicle speed.

16. (New) The vehicular motion control apparatus as claimed in claim 14, wherein the target value of a vehicular motion comprises a target yaw rate and a target yaw angular acceleration,

wherein the vehicular motion target value calculating section is configured to calculate the target yaw rate and the target yaw angular acceleration on the basis of the detected steering angle, the detected vehicle speed, and the constants,

wherein the road wheel steering mechanism command value comprises a target wheel steering angle,

wherein the road wheel steering angle command value calculating section is configured to calculate the target wheel steering angle on the basis of the target yaw rate, the target yaw angular acceleration, the detected steering angle, and vehicle speed,

wherein the road wheel steering angle servo calculating section is configured to calculate the control signal such that the detected road wheel angle is coincident with the target wheel steering angle.

17. (New) The vehicular motion control apparatus as claimed in claim 16, wherein the controller is configured to calculate the map reference vehicle speed by determining if a difference between a present detected vehicle speed value and a previous map reference vehicle speed from a previous predetermined control period is greater than a vehicle speed variation rate limit value.

18. (New) The vehicular motion control apparatus as claimed in claim 16, wherein the controller further comprises:

a vehicle speed variation rate limit value setting section configured to set a vehicle speed variation rate limit value (dVlimit) in accordance with an absolute value of the steering angle ($|\theta|$) detected by a front road wheel steering angle detecting section;

a first map reference vehicle speed comparing section configured to compare a present detection value (V(n)) of the vehicle speed with a previous map reference vehicle speed (Vmap(n-1)) from a previous predetermined control period to determine whether the present detection value of the vehicle speed (V(n)) is equal to, larger than, or smaller than the previous map reference vehicle speed (Vmap(n-1));

a second map reference value comparing section configured to compare a first difference between the present value of the vehicle speed (V(n)) and the previous map reference vehicle speed (V(n) -Vmap(n-1)) and determine if the first difference is larger than the vehicle speed variation rate limit value (dVlimit) when the first map reference vehicle speed comparing section determines that the present detection value of the vehicle speed (V(n)) is greater than the previous map reference vehicle speed (Vmap(n-1));

a third map reference vehicle speed comparing section configured to compare a second difference between the previous map reference vehicle speed (Vmap(n-1)) and the present detection value of the vehicle speed (Vmap(n-1)–V(n)) and determine if the second difference is larger than the vehicle speed variation rate limit value (dVlimit) when the first map reference vehicle speed comparing section determines that the present value of the vehicle speed (V(n)) is smaller than the previous value of the map reference vehicle speed (Vmap(n-1));

a first map reference vehicle speed setting section configured to set a present map reference vehicle speed (Vmap(n)) of the previous detection value of the map reference vehicle speed and the vehicle speed variation rate limit value (dVlimit) (Vmap(n) = Vmap(n-1) + dVlimit) when the second map reference value comparing section determines that the difference between the present value of the detection value of the vehicle speed (V(n)) and the previous map reference vehicle speed (Vmap(n-1)) is larger than the vehicle speed variation rate limit value (dVlimit);

a second map reference vehicle speed setting section configured to set the present value of the map reference vehicle speed (Vmap(n)) to be equal to the present detection value of the vehicle speed (V(n)) when the first map reference vehicle speed comparing section determines that the present value of the detection value of the vehicle speed V(n) is equal to the previous map reference vehicle speed (Vmap(n-1)), when the second map reference value comparing section determines that the first difference ((V(n) – Vmap(n-1)) is equal to or smaller than the vehicle speed variation rate limit value (dVlimit), and when the third map reference vehicle speed comparing section determines that the second difference is equal to or smaller than the vehicle speed variation rate limit value (dVlimit); and

a third map reference vehicle speed setting section configured to set the present value of the map reference vehicle speed (Vmap(n)) to a subtraction of the vehicle speed variation rate limit value (dVlimit) from the previous value of the map reference vehicle speed (Vmap(n-1)) when the third map reference vehicle speed comparing section determines that the first difference (V(n) - Vmap(n-1)) is larger than the vehicle speed variation rate limit value (dVlimit).

19. (New) The vehicular motion control apparatus as claimed in claim 16, wherein the controller is configured to calculate the target wheel steering angle by comparing an absolute value of a previous value of a rear road wheel steering angle command value ($|\delta^*(n-1)|$) from a previous predetermined control period with a rear road wheel steering angle command value convergence quantity.

20. (New) A vehicular motion control apparatus as claimed in claim 16, further comprising a rear road wheel steering angle command value calculating section which comprises:

a vehicle speed region determining section configured to determine whether the detection value of the vehicle speed is lower than a predetermined vehicle speed (B);

a first rear road wheel steering angle command value comparing section configured to compare an absolute value of a previous value of a rear road wheel steering angle command value ($|\delta^*(n-1)|$) from a previous predetermined control period with a rear road wheel steering angle command value convergence quantity (α) to determine whether the absolute value of the previous value of the rear road wheel steering angle command value ($|\delta^*(n-1)|$) is larger

than the rear road wheel steering angle command value convergence quantity (α) when the detection value of the vehicle speed (V) is lower than the predetermined vehicle speed (B);

a first rear road wheel steering angle command value setting section configured to set a present value of the rear road wheel steering angle command value $\delta^*(n)$ to zero when the absolute value of the previous value of the rear road wheel steering angle command value ($|\delta^*(n-1)|$) is equal to or lower than the rear road wheel steering angle command value convergence quantity (α) ($|\delta^*(n-1)| \leq \alpha$);

a second rear road wheel steering angle command value comparing section configured to compare the previous value of the rear road wheel steering angle command value ($\delta^*(n-1)$) with zero when the absolute value of the previous value of the rear road wheel steering angle command value ($|\delta^*(n-1)|$) is larger than the rear road wheel steering angle command value convergence quantity (α) ($|\delta^*(n-1)| > \alpha$);

a second rear road wheel steering angle command value setting section configured to set the present value of the rear road wheel steering angle command value $\delta^*(n)$ as a subtraction of the rear road wheel steering angle command value convergence quantity from the previous value of the rear road wheel steering angle command value ($\delta^*(n) = \delta^*(n-1) - \alpha$), when the second rear road wheel steering angle command value comparing section determines that the previous value of the rear road wheel steering angle command value ($\delta^*(n-1)$) is larger than zero; and

a third rear road wheel steering angle command value setting section configured to set the present value of the rear road wheel steering angle command value $\delta^*(n)$ as a sum of the previous value of the rear road wheel steering angle command value and the rear road wheel steering angle command value convergence quantity ($\delta^*(n) = \delta^*(n-1) + \alpha$), when the second rear road wheel steering angle command value comparing section determines that the previous value of the rear road wheel steering angle command value ($\delta^*(n-1)$) is equal to or smaller than zero.

21. (New) A vehicular motion control apparatus as claimed in claim 14, wherein the road wheel steering angle command value calculating section is configured to calculate the road wheel steering mechanism command value on the basis of the map reference vehicle speed.